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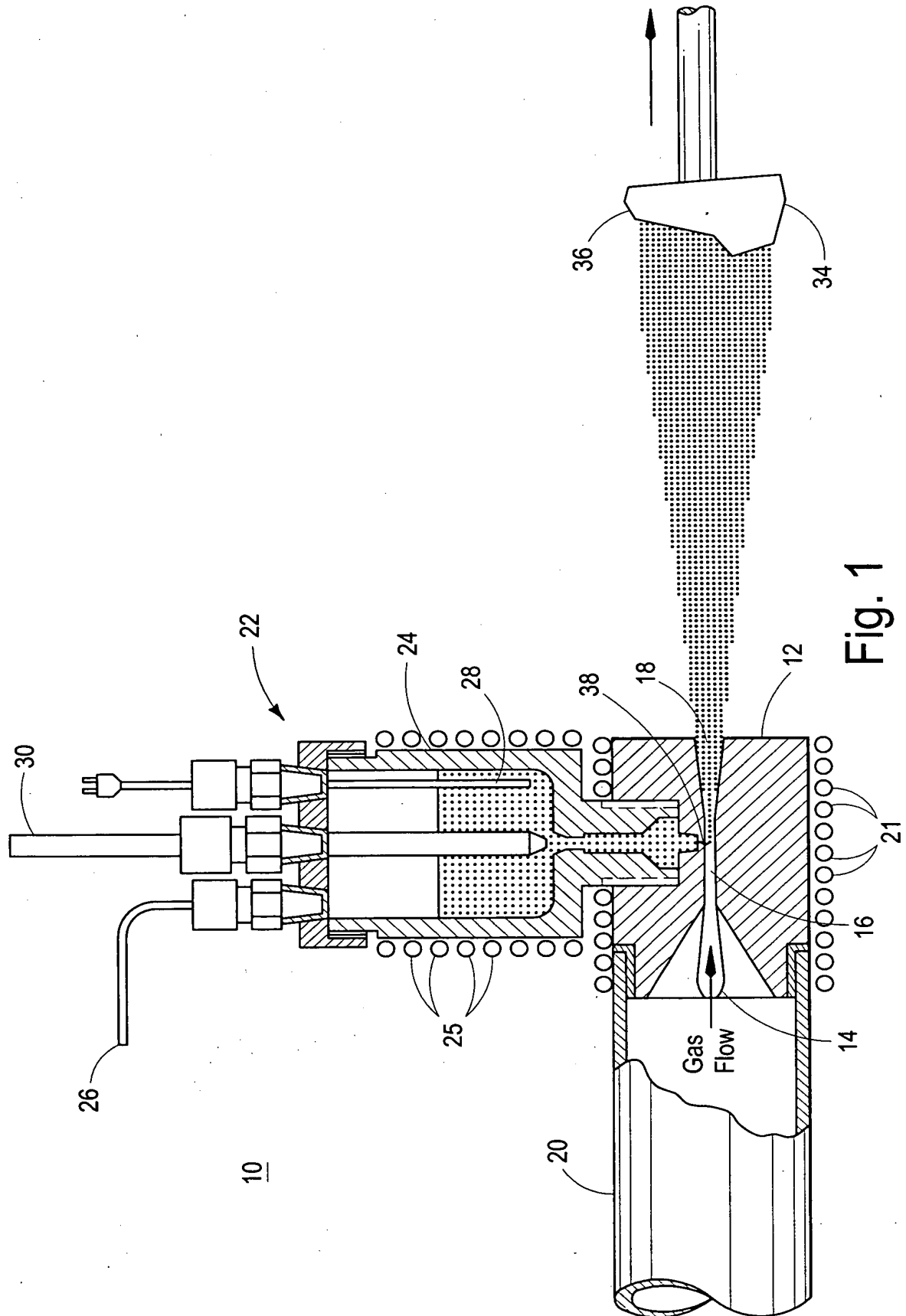
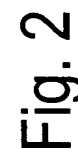
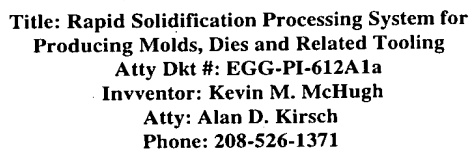
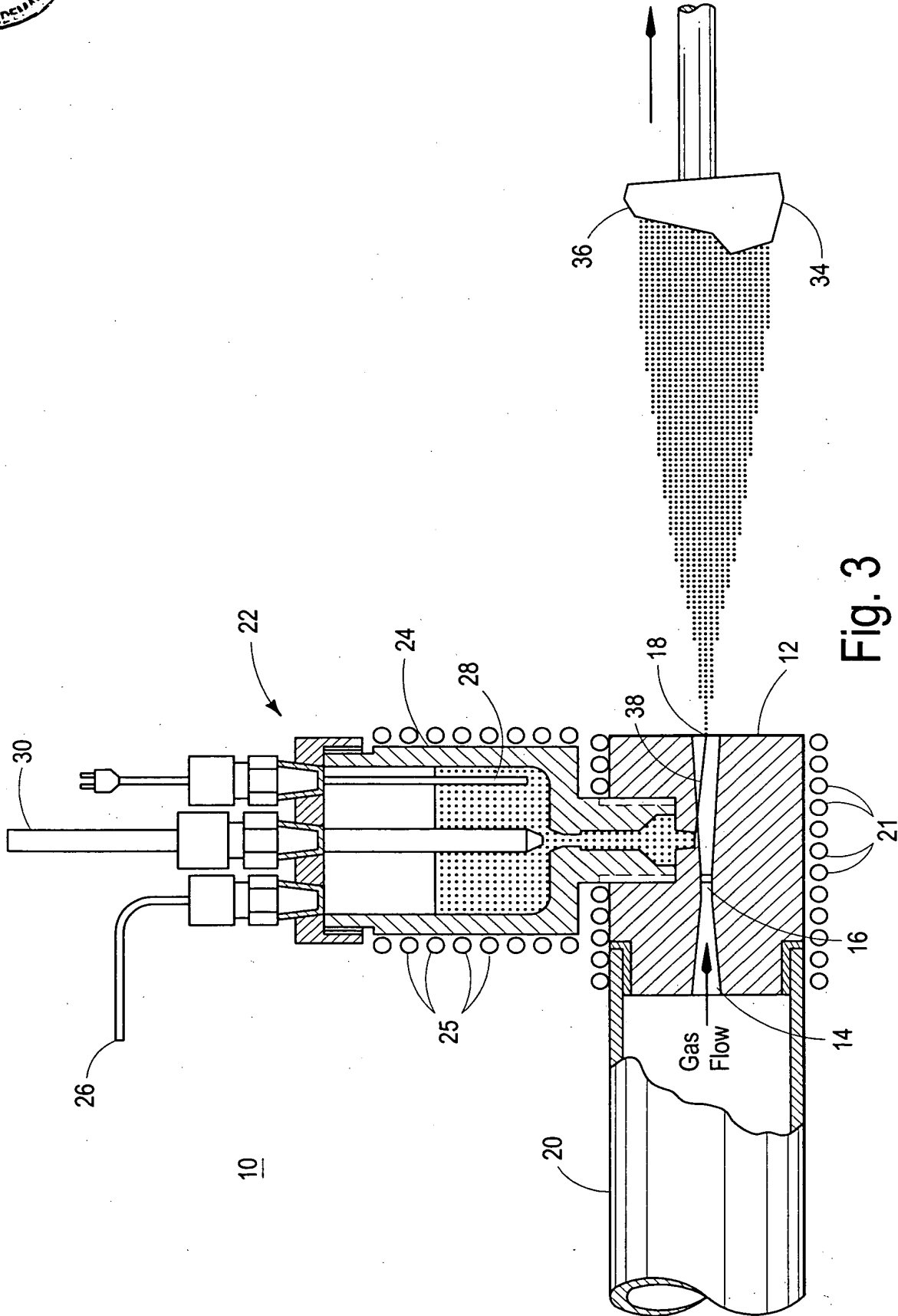


Fig. 1





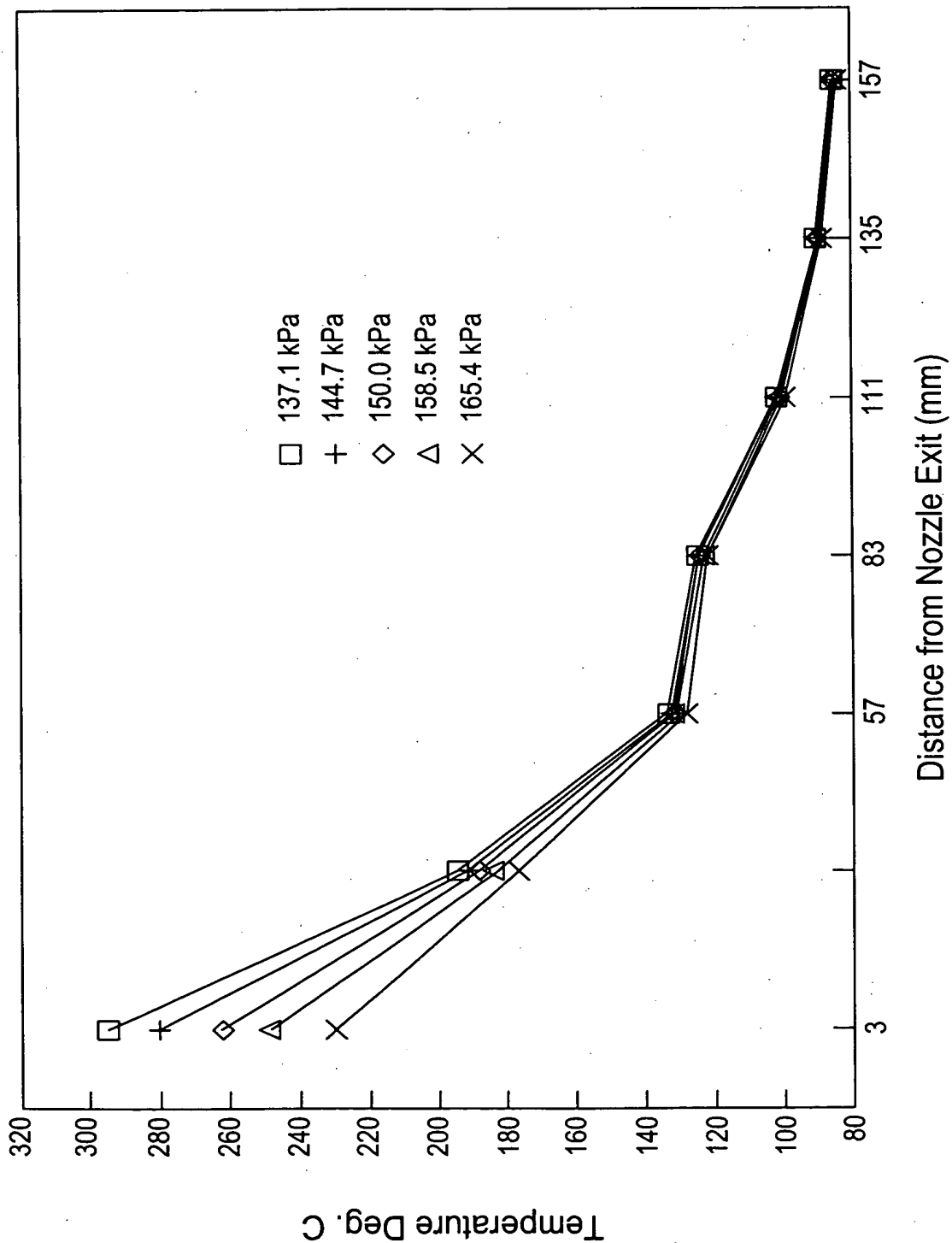
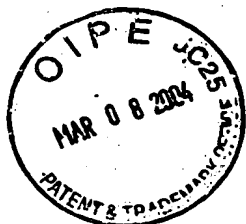


Fig. 4



Title: Rapid Solidification Processing System for
Producing Molds, Dies and Related Tooling
Atty Dkt #: EGG-PI-612A1a
Inventor: Kevin M. McHugh
Atty: Alan D. Kirsch
Phone: 208-526-1371

5/8 Nozzle Information

• Nozzle Information:	14.0°
• Exit Angle	14.0°
• Distance from Liquid Orifice to Nozzle Exit (inches)	1.018
• Number of Orifices	6.0
• Orifice Area (square inches)	0.000314
• Total Area of Liquid Orifices (square inches)	0.0019
• Cross Sectional Area of Nozzle Throat (square inches)	0.06
• Cross Sectional Area of Gas Stream at Nozzle Exit (square inches)	0.266

Fig. 4A

Run Time (sec)	TC#1 (°C)	TC#2 (°C)	TC#3 (°C)	TC#4 (°C)	TC#5 (°C)	TC#6 (°C)	Argon TC#7 (°C)	Gas Flow (slpm)
45.5	309.7	165.3	107.7	100.6	86.0	79.5	74.8	253.7
105.5	318.8	190.5	122.6	113.5	92.9	83.9	79.1	283.6
165.5	318.0	199.0	129.8	120.1	97.3	87.0	81.6	305.8
215.5	324.6	201.3	134.5	124.8	101.0	90.0	83.9	329.5
285.5	311.7	200.0	136.0	127.0	102.5	91.1	85.2	355.9
345.5	295.9	196.6	135.3	127.0	102.5	90.6	84.6	381.2
405.5	279.9	194.4	135.1	127.2	102.9	91.2	85.1	412.2
465.5	266.9	190.6	133.4	126.2	101.9	90.6	84.1	439.3
525.5	251.8	186.0	131.9	125.4	101.4	90.1	84.2	474.7
585.5	233.4	180.1	130.3	123.8	100.4	89.5	83.7	504.5
Distance from Nozzle Exit (inches)								
	0.125	1.25	2.25	3.25	4.375	5.312	6.187	

Fig. 4B

Gas Temperature Nozzle Inlet (°C)	Nozzle Temperature Liquid Orifice (°C)	Chamber Temperature (°C)	Nozzle Inlet Pressure (psia)
552.7	347.9	38.0	15.096
555.8	356.7	39.0	16.168
557.2	362.7	39.7	17.074
548.5	365.0	40.0	18.020
527.3	364.1	41.1	19.003
501.7	359.3	41.9	19.926
476.0	350.9	42.0	20.982
453.9	340.9	43.4	21.928
429.2	329.3	44.0	23.054
409.0	317.4	44.1	23.968

Fig. 4B



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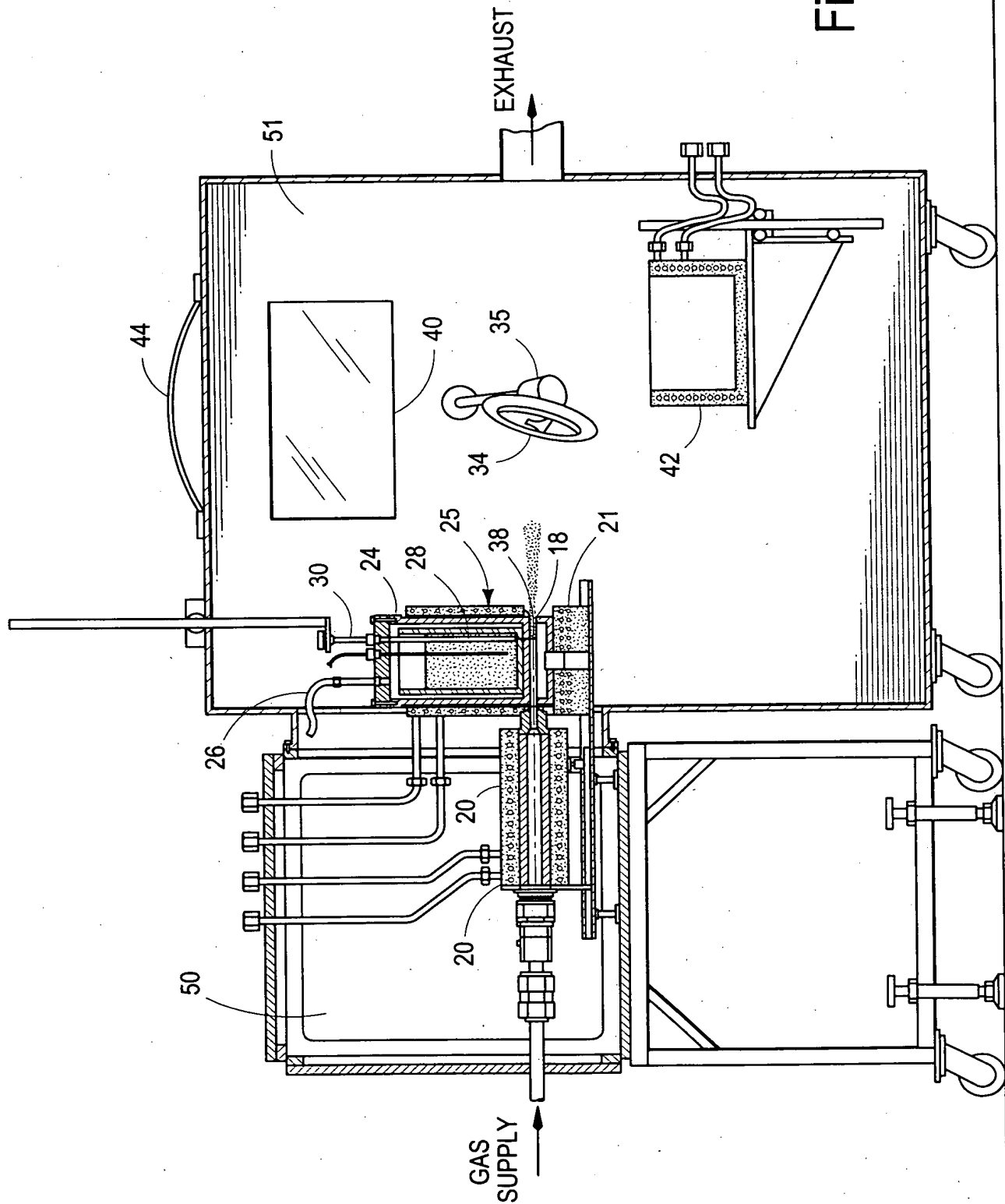


Fig. 5



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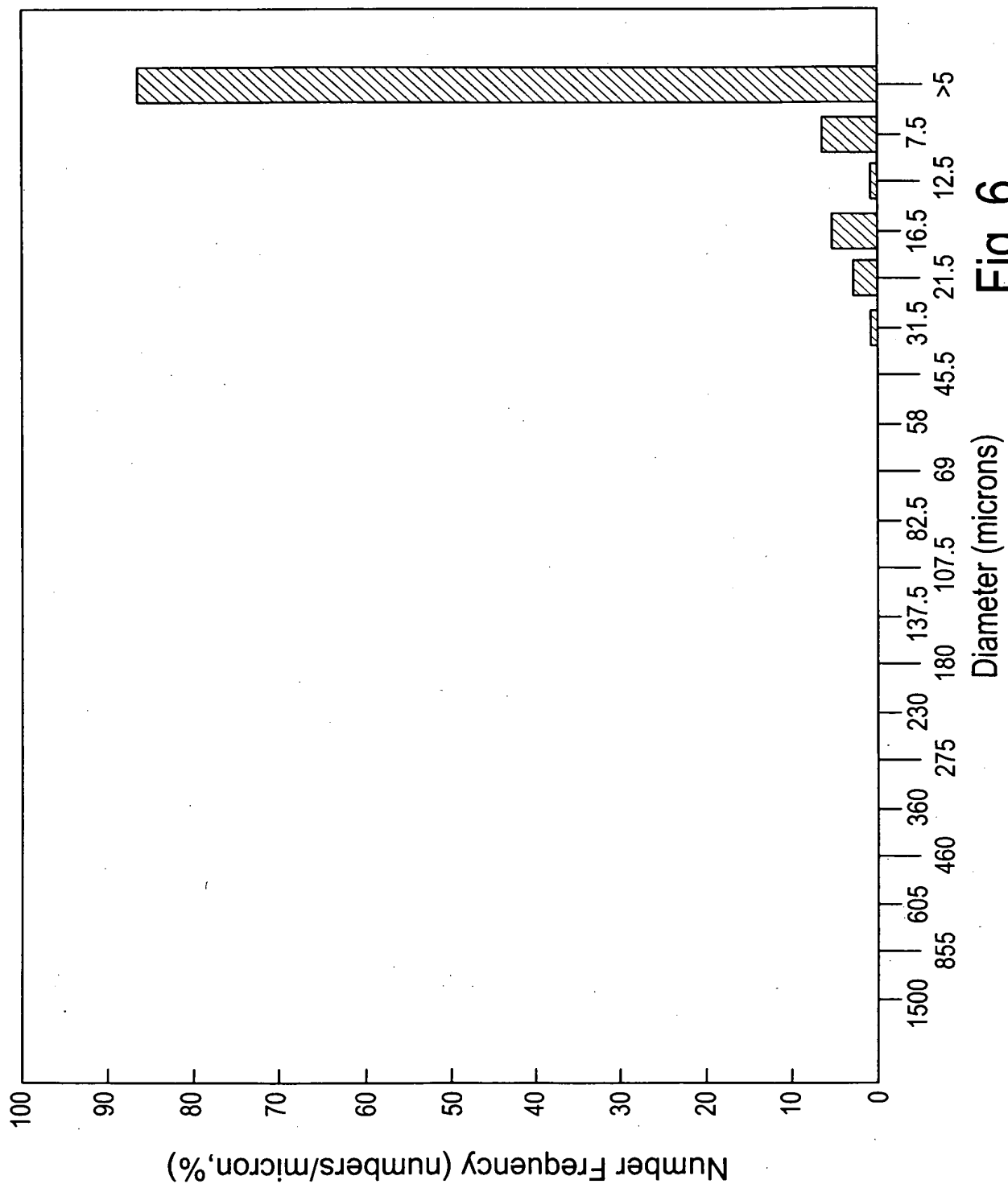
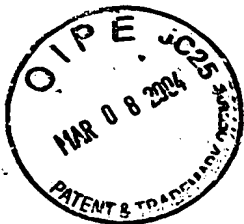


Fig. 6



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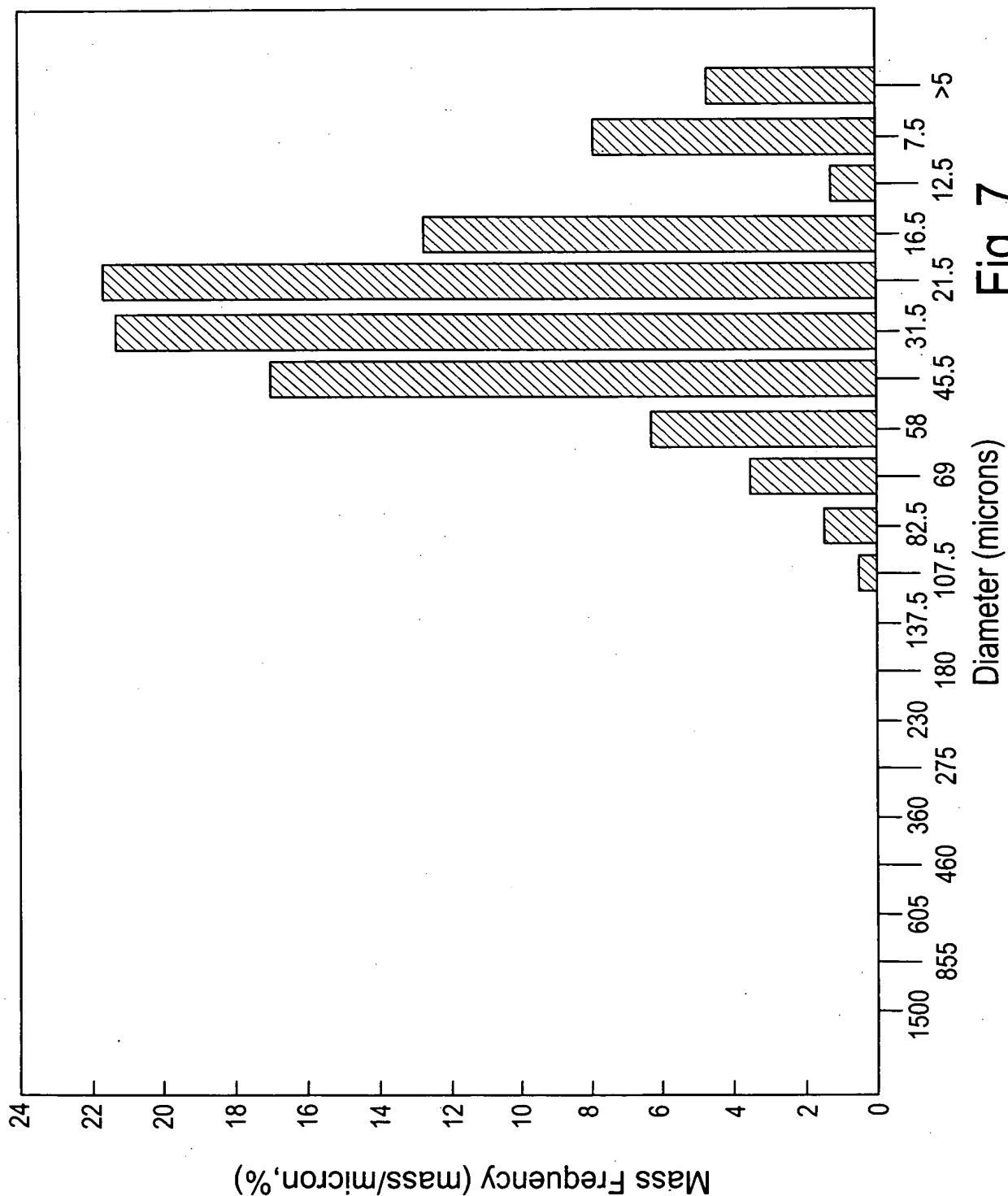


Fig. 7